

REMARKS

The specification, title, and abstract have been amended to make editorial changes therein, bearing in mind the criticisms in the Official Action, to place the application in condition for allowance at the time of the next Official Action.

Claims 1-13 were rejected under §112, second paragraph, and have been amended as to form. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 1-4, 6-10, and 13 were rejected as anticipated by RONEY et al. and claims 5 and 11-12 were rejected as unpatentable over RONEY et al. Reconsideration and withdrawal of the rejections are respectfully requested.

RONEY et al. disclose an LED array device in which the LEDs 12 are mounted on a conventional circuit board 20 of FR-4 material (column 2, lines 43-45, and column 3, line 21). A thermally conductive material 14 is added under and on top of the circuit board 20 between the LEDs 12. The thermally conductive material has a thermal conductivity of about 1.15 W/Kxm (as is known, 1 Btu/(h.ft².°F/in) equals 0.144227889 W/(m².K/m), thus 8 BTU-IN/hr-ff²-°F disclosed at column 3, line 9 of RONEY et al. equals 1.15 W/Kxm).

In contrast, amended claim 1 provides that the support on which the LEDs are mounted has a thermal conductivity of at least 1.5 W/Kxm (30% more than disclosed in RONEY et al.) Neither the FR-4 material on which LEDs 12 are mounted nor the thermally conductive material 14 in RONEY et al. has this thermal conductivity and thus amended claim 1 avoids the \$102 rejection.

New claims 14-19 and amended claims 2, 4-5, 11, and 13 provide that the LEDs are mounted on an exterior mounting surface of the support. This is illustrated in Figure 1 of the present application, by way of example. Indeed, this is another feature that particularly distinguishes these claims from RONEY et al. Note that in RONEY et al., the LEDs are mounted on a conventional circuit board that does not have the required thermal conductivity and then the LEDs and circuit board are covered with a material that increases thermal conductivity (albeit, not to the level of claims 1-12 and 14-19). The thermally conductive material is not intended to support the LEDs. In contrast, the invention defined in these claims includes a support that has the requisite thermal conductivity and that has an exterior surface on which the LEDs are mounted. That is, the support itself has the required thermal

conductivity. There is no need to add another material that covers the support and increases thermal conductivity.

Claim 13 further provides that the support dissipates heat sufficiently to be able to have less than 2 mm between adjacent LEDs. The Official Action points to Figure 1 of RONEY et al. for this feature. Figure 1 of RONEY et al. discloses a device with about 80 LEDs (there are 20 in the quadrant shown) but no spacing is given. Figure 2 shows that 11 LEDs extend across the diameter of the device. If the device has an area of 75 cm² as indicated at column 1, line 17, then the diameter of such a device would be about 100 mm. Eleven LEDs would have centers about 9 mm apart in such a device. Accordingly, it is believed that the device in RONEY et al. does not disclose or suggest LEDs spaced less than 2 mm apart, as claimed in claim 13. Indeed, since RONEY et al. disclose a thermal conductivity 30% less than 1.5 W/Kxm, they would not recognize that LEDs could be as close as claimed.

Further, based on this analysis, it does not appear that RONEY et al. disclose or suggest spacing adjacent LEDs no more than 5 mm apart as in new claim 15.

The new dependent claims are also believed to avoid the rejection of record. Claim 16 provides that an integrated circuit is mounted directly on the exterior

mounting surface of the thermally conductive support. RONEY et al. suggest that components are mounted on the circuit board 20, not on the exterior surface of the thermally conductive support. Claim 17 provides that the packing density of the plural LEDs is at least 4 LEDs per square centimeter, while RONEY et al. disclose a packing density of about 1, and claim 19 provides that the support has a thermal conductivity of at least 3 W/Kxm, which far exceeds the 1.15 W/Kxm disclosed in RONEY et al.

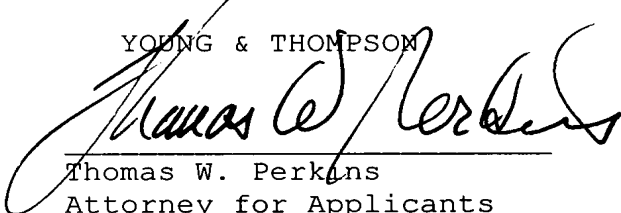
In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification, claims, and abstract by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

Respectfully submitted,

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